

IN THE CLAIMS:

1. (Currently Amended) A substantially purified nucleic acid molecule that encodes a maize or soybean ~~carbon assimilation pathway~~ ribulose-bisphosphate carboxylase enzyme or fragment thereof, ~~wherein said maize or soybean carbon assimilation pathway enzyme is selected from the group consisting of:~~

- (a) ~~ribulose bisphosphate carboxylase;~~
- (b) ~~phosphoglycerate kinase;~~
- (c) ~~glyceraldehyde 3 phosphate dehydrogenase;~~
- (d) ~~putative glyceraldehyde 3 phosphate dehydrogenase;~~
- (e) ~~triose phosphate isomerase;~~
- (f) ~~aldolase;~~
- (g) ~~fructose 1,6 bisphosphatase;~~
- (h) ~~transketolase;~~
- (i) ~~putative transketolase;~~
- (j) ~~sedoheptulose 1,7 bisphosphatase;~~
- (k) ~~D-ribulose 5 phosphate 3 epimerase;~~
- (l) ~~ribose 5 phosphate isomerase;~~

- (m) ~~putative ribose-5-phosphate isomerase;~~
- (n) ~~ribose-5-phosphate kinase;~~
- (o) ~~phosphoenolpyruvate carboxylase;~~
- (p) ~~NADP-dependent malate dehydrogenase;~~
- (q) ~~aspartate aminotransferase;~~
- (r) ~~putative aspartate aminotransferase;~~
- (s) ~~alanine aminotransferase;~~
- (t) ~~NADP-dependent malic enzyme;~~
- (u) ~~NAD-dependent malic enzyme;~~
- (v) ~~PEP carboxykinase;~~
- (w) ~~putative PEP carboxykinase;~~
- (x) ~~pyruvate, phosphate dikinase; and~~
- (y) ~~pyrophosphatase.~~

wherein said nucleic acid molecule comprises the sequence of SEQ ID NO: 5 or
complement thereof.

23. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
24. (New) A substantially purified nucleic acid molecule consisting of a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
25. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence having between 100% and 90% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
26. (New) The substantially purified nucleic acid molecule of claim 25, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 95% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
27. (New) The substantially purified nucleic acid molecule of claim 26, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 98% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
28. (New) The substantially purified nucleic acid molecule of claim 27, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 99% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.